degree semantics!

Semantics 3, UCLA Linguistics

Spring 2022

---

1 this week's goals

- morphosyntactic considerations
- semantic considerations
- what do degrees look like?
- semantic theories of degrees

2 data hacking degrees

- any degree names? demonstratives?
- degree quantifiers?
- adjectives and gradability

(1) a. %A is very Australian. *non-gradable*
b. A is very tall. *gradable*

- relevant adjectival constructions (Bresnan, 1973)

(2) a. more people / more intelligent *comparative*
b. as many people / as intelligent *equative*
c. too many people / too intelligent *excessive*
d. that many people / that intelligent *demonstrative*
e. so many people / so intelligent *resultative*
f. how many people / how intelligent *degree wh-word*

- adjectives and measure phrases
- a side bar: degree-free languages
  - our first look into cross-linguistic variation in the ontology
  - (although there's some cross-linguistic variation in tense-marking, see Tonhauser 2011)
  - 'The Degree Parameter': Beck et al. (2009); Bochnak (2015)
  - why just degrees?! (<u>is</u> it just degrees?)

(3) **comparative strategies across languages** (Stassen, 1985; Kennedy, 2007)
a. A is taller than B. *particle / explicit degree*
b. Compared to B, A is tall. *direct comparison / explicit individual*
c. A exceeds B in height. *exceed / predicative*
d. A is tall and B is not. *conjoined*

(4) **equative strategies across languages** (Haspelmath and Buchholz, 1998; Rett, 2020)
   a. A is as tall as B. *particle / explicit equative*
   b. A is tall like B. *degree relative*
   c. A equals B in height. *predicative*
   d. A is tall; B is tall (too). *conjoined*

- so let's say we want to include degrees in our ontology... what would that look like?
  - what's their mereology?
  - what would that mean, *a priori*, for plural formation?

(5) **standard interval notation**
   a. **open**: $(a, b) = \{x : a > x > b\}$
   b. **upper closed**: $(a, b] = \{x : a > x \geq b\}$
   c. **lower closed**: $[a, b) = \{x : a \geq x > b\}$
   d. **closed**: $[a, b] = \{x : a \geq x \geq b\}$

  - what would that mean, *a priori*, for universal quantification?
  - see Rett (2015) for some fun data on this sort of thing

3 an alternative

- Klein (1980, 1982, 1990); Doetjes (1997), see also Bale (2011)
- a 'Kleinian' a.k.a. partial-functions treatment of adjectival constructions
  - designed to deal with vagueness
  - a big selling point no extra entity in the ontology
  - a few assumptions:
    - an adjective's domain is partiallly ordered according to some dimension
    - for adjectival constructions, context constrains the domain (to some subset) via the relevant **comparison class**
    - a gradable adjective induces a tripartite partition on its domain: a positive extension; a negative extension; an extension gap ('zone of indifference,' Sapir, 1944)

(6) for an adjective ϕ,
   a. $[\![\phi]\!]^c = 1$ iff x is in the positive extension of x at c,
   b. $[\![\phi]\!]^c = 0$ iff x is in the negative extension of x at c, and
   c. $[\![\phi]\!]^c$ is undefined otherwise

    - a Consistency Postulate requires any partitioning of a subset of the domain to preserve the original ordering on the entire domain

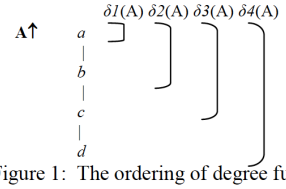


Figure 1: The ordering of degree functions

- considerations against? (Kennedy, 1999a)
  - the usual morphosyntactic ones...
  - antonyms in general (a low blow)

- MPs!!!!
- cross-polar anomaly
- comparisons of deviation

4 degree semantics

- old school! Bartsch and Vennemann (1972); Cresswell (1976)

  > When we make comparisons we have in mind points on a scale. The scale can be represented by a relation, and the points on the scale by the field of that relation. (A relation in set theory is a set of ordered pairs; the field of a relation is the set of all things that are related in one direction or another to something else.) Where > is a relation, we denote its field by $\mathscr{F}(>)$:
  >
  > (7) A **degree** (of comparison) is a pair $\langle u, > \rangle$, where > is a relation and $u \in \mathscr{F}(>)$.

  - might want to add a 'dimension of measurement' element, make it a triple
  - these elements are all implicit in modern degree semantics, but nevertheless still important

- gradable adjectives (Seuren, 1984; Cresswell, 1976; Hellan, 1981; Hoeksema, 1984; von Stechow, 1984)

  (8) $[\![\text{tall}]\!] = \lambda x \lambda d.\text{tall}(x,d)$

  (9) a. A ate (lunch).
  b. A is (6ft) tall.

- antonyms (e.g. *tall*/*short*) differ in their ordering (Seuren, 1984; von Stechow, 1984, a.o.).

  (10) A is taller than B. → B is shorter than A.

  (11) context: B is 5ft tall.
  a. $\lambda d.\text{tall}(b,d) = (0,5]$
  b. $\lambda d.\text{short}(b,d) = [5,\infty)$

- degree semantics has a specialized type-shifter that is sensitive to the direction of its scales (Heim, 2000)

  (12) $\textsc{max}(D_{+/-}) = \iota d \forall d'[d' \neq d \rightarrow d' <_{+/-} d]$

5 the semantics of comparatives and equatives

- two types of comparatives (and equatives):

  1. **clausal** comparatives are those whose internal argument is a clause (has overt tense morphology) or a plausible clausal source ('Reduced Clausal Approach' to e.g. *John is taller than Sue*).
  2. **phrasal** comparatives have no plausible clausal source

  (13) a. He doesn't look older than 23 (*is/*looks).
  b. No man is stronger than himself (*is). (Hoeksema, 1983)

- the semantics of the comparative and equative (von Stechow, 1984; Heim, 2000):

  (14) a. $[\![\text{-er}]\!] = \lambda D \lambda D'.\ \textsc{max}(D') > \textsc{max}(D)$
  b. $[\![\text{as}]\!] = \lambda D \lambda D'.\ \textsc{max}(D') \geq \textsc{max}(D)$

(15) A is as tall as/taller than B (is).
   a. $\max(\lambda d.\text{tall(a,d)}) > \max(\lambda d'.\text{tall(b,d')})$ *comparative*
   b. $\max(\lambda d.\text{tall(a,d)}) \geq \max(\lambda d'.\text{tall(b,d')})$ *equative*

- NPIs are licensed in the targets of comparatives and equatives (Ladusaw, 1979; Seuren, 1984; von Stechow, 1984; Hoeksema, 1983, 1984; Heim, 2003)

(16) a. She is happier now than ever before.
   b. He would rather die than lift a finger. Heim (1985)

(17) a. He is as happy to lose his honor as he is to lose so much as a dime.
   b. She is as happy now as ever before.

  - the *any* in targets of comparatives appears to be free-choice *any*; perhaps DE degree quantifiers and individual quantifiers license different NPIs (Hoeksema, 1983)

(18) a. This girl is smarter than almost any boy.
   b. One diamond is more valuable than almost any number of bricks.

- this is predicted given two assumptions (cf. Hoeksema, 1983):

1. that the standard clauses of comparatives are downward-entailing (DE)

(19) A function f of type $\langle e, \langle d, t\rangle\rangle$ is **downward-monotonic** iff
$\forall x, d, d'[f(x)(d) \wedge d' < d \rightarrow f(x)(d')]$ Heim (2000)

2. that the comparative and equative are degree quantifiers, which means we have to test for downward entailingness in their degree arguments

(20) context: A is 6ft tall, B is 5ft tall, C is 4ft tall.
   a. A is taller than B. $\rightarrow$ B is taller than C.
   b. A is taller than B. $\nrightarrow$ B is taller than A.
   c. C is shorter than B. $\rightarrow$ C is shorter than A.
   d. C is shorter than B. $\nrightarrow$ B is shorter than C.

(21) context: A is 6ft tall, B is 5ft tall, C is 4ft tall.
   a. A is as tall as B. $\rightarrow$ B is as tall as C.
   b. A is as tall as B. $\nrightarrow$ B is as tall as C.
   c. C is as short as B. $\rightarrow$ C is as short as A.
   d. C is as short as B. $\nrightarrow$ B is as short as C.

  - the equative entailment only goes through on the 'at least' interpretation of equatives
  - the negative-antonym entailment only goes through if all relevant individuals are considered short because of evaluativity

5.1 quantifiers in *than*-clauses

- Kennedy (1999b): if comparatives are degree quantifiers, do they scope with individual quantifiers? (see also Schwarzschild and Wilkinson, 2002)

  - lots of equivalences between readings, except with upward-monotonic individual quantifiers

(22) Exactly two girls are taller than 5 feet.
   a. $|\{x : \text{girl}(x) \wedge \max\{d : \text{tall}(x, d)\} > 5'| = 2$ *exactly 2 > -er than 5*
   b. $\max\{d : |\{x : \text{girl}(x) \wedge \text{tall}(x, d)\}| = 2\} > 5'$ *-er than 5 > exactly 2*

  - unambiguously (a), so we need syntactic constraints on the scopeability of degree quantifiers

(23) **Kennedy's Generalization**: If the scope of a quantificational DP contains the trace of a DegP, it also contains that DegP itself. (Heim, 2000)

- Heim (2000): lots of non-equivalences that suggest otherwise

(24) (This draft is 10 pages.) The paper is required to be exactly 5 pages longer than that.
a. $\forall w \in \textsf{Acc} : \textsc{max}\{d : \textsf{long}_w(p, d)]\} = 15$ *required > -er*
b. $\textsc{max}\{d : \forall w \in \textsf{Acc} : \textsf{long}_w(p, d)\} = 15$ *-er > required*

- (a): the paper is exactly 15 pages long in every acceptable world
- (b): the paper is exactly 15 pages long in those worlds in which it's the shortest

(25) (This draft is 10 pages.) The paper is allowed to be exactly 5 pages longer than that.
a. $\exists w \in \textsf{Acc} : \textsc{max}\{d : \textsf{long}_w(p, d)\} = 15$
b. $\textsc{max}\{d : \exists w \in \textsf{Acc} : \textsf{long}_w(p, d)\} = 15$

(26) (This draft is 10 pages.) The paper is required to be less long than that.
a. $\forall w \in \textsf{Acc} : \textsc{max}\{d : \textsf{long}_w(p, d)\} < 10$
b. $\textsc{max}\{d : \forall w \in \textsf{Acc} : \textsf{long}_w(p, d)\} < 10$

(27) (This draft is 10 pages.) The paper is allowed to be less long than that.
a. $\exists w \in \textsf{Acc} : \textsc{max}\{d : \textsf{long}_w(p, d)\} < 10$
b. $\textsc{max}\{d : \exists w \in \textsf{Acc} : \textsf{long}_w(p, d)\} < 10$

- Heim's conclusions: "DegPs are mobile, but they are not allowed to cross over quantificational DPs. This appears to be a syntactic constraint of some kind, because the prohibited scopings would not in any way be semantically deviant."
- more discussion:
  - a class co-taught by Kennedy and Heim right after this beef: https://semantics.uchicago.edu/kennedy/classes/mit/seminar.pdf
  - Bhatt and Pancheva (2004), a syntactic approach

5.2 the weak reading

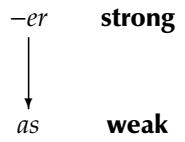
- in general, clausal equatives are ambiguous between a weak ('at least') and strong ('exactly') interpretation

(28) A is as tall as B (is)...
a. ...so you were wrong to say he is taller. èxactly'
b. ...in fact, he's taller. 'at least'

- since Horn (2013), this ambiguity has been characterized just like the inclusive/exclusive ambiguity for *or*: as the result of a quantity implicature
  - *as* lexically encodes the weak, ≥ interpretation
  - and equatives come to have the strong, = interpretation via a quantity implicature due to the competition between equatives and comparatives
  - (this takes for granted that equatives and comparatives are on the same Horn scale, or have identical parse trees (Katzir, 2007), but that there is an asymmetric entailment relationship between them)

(29) a. A is taller than B. → A is as tall as B.
b. A is as tall as B. ↛ A is taller than B.

Figure 1: *The traditional Horn scale for comparatives and equatives*



6 evaluativity

- a degree construction is evaluative iff it requires that some degree exceed a contextually-valued standard
- since positive constructions are evaluative, a good test for evaluativity is whether or not a construction entails its positive-construction counterpart (Bierwisch, 1980)

(30) a. A is shorter than B. ↛ B is short.
b. A is as short as B. → B is short.

- with respect to evaluativity, there are three types of degree constructions:

1. constructions that are always evaluative

(31) a. B is tall/short. *positive constructions*
b. Is B tall/short? *polar degree questions*
c. A is more tall/short than B. *analytic comparatives*

   - also any construction with an 'extreme' adjective (Paradis, 2001), which lexicalize evaluativity
   - also any construction with an 'evaluative DP,' e.g. *some amount of* (Bolinger, 1972)
   - analytic comparatives are only evaluative if there is a synthetic counterpart (Matushansky, 2001)

2. constructions that are never evaluative (when formed with relative adjectives)

(32) a. B is 5ft tall. *measure phrase constructions*
b. A is taller/shorter than B. *positive or negative synthetic comparatives*

   - for an interesting exception to the MP construction claim, see Doetjes (2012)

3. constructions that are evaluative with negative antonyms (or are marked for other reasons)

(33) a. How tall is B? *positive-antonym degree questions*
b. B is that tall (too). *positive-antonym degree demonstratives*
c. A is as tall as B. *positive-antonym equatives*
d. Bs are as tall as 100ft. *MP equatives*

- traditionally, the puzzle of evaluativity has been discussed exclusively in terms of the contrast between the evaluative positive construction (31-a) and the never-evaluative constructions in (32):
  - (how can we account for a semantic property that pops up in the absence of degree morphology, but goes away in the presence of degree morphology?)
  - a traditional solution (Cresswell, 1976): a null morpheme

(34) POS → $\lambda G_{\langle e,\langle d,t\rangle\rangle}\lambda x\exists d[G(x,d) \wedge d > s]$, for some contextual standard s

> "As far as I can tell, there is no independent justification for introducing POS; it is merely a device for fixing up the semantics." (Klein, 1980, 3)
>
> "The operator "positively," call it POS, is invisible, which made E. Klein think that it doesn't exist." (von Stechow, 1984, 59)

  - it also doesn't exist in overt form in any natural language we've seen (Grano, 2012)...
  - ...and anyway, it's false that evaluativity only crops up in the absence of degree morphology ((33))

7 degree polysemy

- historically, several different and distinct phenomena:
  - amount relatives (Carlson, 1977; Heim, 1987; Grosu and Landman, 1998)

    (35) a. Jane drank [$_{DP}$ the champagne [$_{CP}$ they bought that evening]] *individual*
    b. It will take us the rest of our lives to drink [$_{DP}$ the champagne [$_{CP}$ they spilled that evening]] *amount*

  - container/pseudopartitive polysemy (Chierchia, 1998)

    (36) a. Jane smashed [$_{DP}$ the bottle of wine] *container*
    b. Jane drank [$_{DP}$ the bottle of wine] *content*

  - measure phrase polysemy (Stavrou, 2003; Landman, 2006; Rothstein, 2009)

    (37) a. The [two cups of wine] on this tray are blue. *substance*
    b. The [two cups of wine] in this soup is overkill. *measure noun*

  - the 'how many' ambiguity (Cresti, 1995; Romero, 2005)

    (38) How many books must Jane read?
    a. Jane was told to read specific books. How many of them? *object*
    b. Jane was told to read a specific number of books. What was it? *amount*

- correspondingly, different and distinct formal accounts:
  - amount relatives (Grosu, 2009; Kotek, 2011)
    - lots of options, all construction-specific:
    - syntactic ambiguity from a covert maximality operator in the CP; or
    - syntactically restricted deferred reference or polysemy
  - container/pseudopartitive polysemy
    - from Chierchia 1998: a type-shifter C from a container x to its contained substance y

      (39) a. John smoked two packs of cigarettes.
      b. $[\lambda x(\mathsf{smoke}(\mathsf{John}, C(x)))]$ $(2(\textsc{pl}(\mathsf{pack}(\iota\ \mathsf{cigarettes}))))$

    - informally: 'John smoked the contents of two packs of cigarettes.'
    - elsewhere (in line with what I will propose; Pustejovsky 1995; Pustejovsky and Bouillon 1995): this is a semantic polysemy with syntactic effects
  - measure phrase polysemy
    - measure nouns are lexically ambiguous (Landman, 2006; Rothstein, 2009)

      (40) a. $[\![\mathsf{glass}]\!] = \lambda y \lambda x.\mathsf{glass}(x) \wedge \mathsf{contain}(x, y)$ *container*
      b. $[\![\mathsf{glass}]\!] = \lambda n \lambda P \lambda x.P(x) \wedge \textsc{meas}(x) = \langle n, \mathsf{glassful}\rangle$ *substance*

    - measure phrases are additionally syntactically ambiguous (ibid.)

      (41) a. [$_{DP}$ three$_i$ [$_{NumP}$ t_i [$_{NP}$ glasses of [$_{DP}$ wine]]]] *substance*
      b. [$_{DP}$ [$_{NP}$ [$_{MeasP}$ [$_{Num^\circ}$ three] [$_{Meas^\circ}$ glasses of]] [$_{N}$ wine]]] *measure noun*

  - the 'how many' ambiguity
    - *many* encodes a measurement quantifier (type $\langle d, \langle\langle e, t\rangle, \langle\langle e, t\rangle, t\rangle\rangle\rangle$);
    - can scope with the modal independently of *how* (Cresti, 1995; Romero, 2005)

      (42) How many books must Jane read?

a. $[_{CP}$ how$_d$ $[_{C^\circ}$ C$_{+wh}$ [t_d many books]$_x$ $[_{IP}$ must John read t_x]]]
b. $[_{CP}$ how$_d$ $[_{C^\circ}$ C$_{+wh}$ [must [t_d many books]$_x$] $[_{IP}$ John read t_x]]]

* with the following truth-conditional ambiguities:

(43) a. **object interpretation**: $\exists x > \textit{must}$
$\lambda p \exists d[p(w^@) \wedge p = \lambda w \exists x[\textsf{books}_w(x) \wedge \forall w' R w[\textsf{read}_{w'}(j,x)] \wedge |x| = d]]$
b. **amount interpretation**: $\textit{must} > \exists x$
$\lambda p \exists d[p(w^@) \wedge p = \lambda w \forall w' R w[\exists x[\textsf{books}_{w'}(x) \wedge \textsf{read}_{w'}(j,x) \wedge |x| = d]]]$

* can't account for parallel ambiguities in languages with different quantity question morphology (e.g. Romanian) or syntax (e.g. French; Rett 2008)

- my claim: each phenomenon can be seen as instances of a DP denoting an individual or some degree corresponding to the measure of that individual along some salient dimension (e.g. quantity, volume)
- examples of degree polysemy

(44) a. [Many guests] are drunk. *individual*
b. [Many guests] is more than Bill had anticipated. *degree*

(45) a. [Four pizzas] are vegetarian. *individual*
b. [Four pizzas] is enough. *degree*

(46) a. [French fries] were eaten by the senators. *individual*
b. [French fries] is not enough. The senators will need protein. *degree*

(47) a. [Four feet of (the) plywood] are warped. *indvidual*
b. [Four feet of (the) plywood is more than Betty asked for. *degree*

(48) a. [The paintings he salvaged] were damaged/was enough.
b. [How many books] are on the table?/is too many?
c. [Some (of the) cookies] are delicious/is more than they deserve.

(49) a. Sue accepted money from lobbies like [so many politicians] before her. *individual*
b. Sue will get in trouble for bringing [so many politicians] to the party. *degree*

- properties of degree polysemy
  - it is productive across all DP types, provided determiner agreement is properly controlled for

(50) a. These many children were advanced a grade. *individual*
b. #These many children was more than expected. *#degree*

(51) a. These many guests asked for their coats the same time. They had called a cab. *individual*
b. This many guests asked for their coats the same time. *They had called a cab. **individual*

  - not restricted to subject position:

(52) Jane bought three pizzas.
a. They were delicious. *individual*
b. It was more than we needed. *degree*

(53) a. Jane prefers three square pizzas to those round ones. *individual*
b. Jane prefers three square pizzas to two. *degree*

  - it is distinct from the specific/non-specific ambiguity; (53-a) is itself ambiguous

- a DP can only receive a degree interpretation when the degree it denotes is associated with a monotonic dimension of measurement

- quantity is monotonic...

(54) Four pizzas is vegetarian/more than Betty asked for.

- ...but distributive heaviness (forced by *heavy*; Schwarzschild 2009) is not

(55) a. Heavy barbells are on that side of the gym. *individual*
b. #Heavy barbells is more (heavy) than Betty had asked for. *degree*

- although dimensions of measurement are still quite context-sensitive, so

(56) Heavy barbells is not enough; to get in shape, you'll need to do some cardio, too.

- another example:

(57) *context: The nobles are instructed to bring three 22-karat gold rings to the Queen.*
a. Lord A brought two 22-karat gold rings. The rings Lord A brought is not enough.
b. Lord B brought three 18-karat gold rings. #The rings Lord B brought is not enough.

- coupling Schwarzschild's data with the polysemy data:

(58) a. 4-inch cables are warped. *attributive individual*
b. 4 inches of cable are warped. *pseudopartitive individual*

(59) a. #4-inch cables is more than Betty asked for. *attributive degree*
b. 4 inches of cable is more than Betty asked for. *pseudopartitive degree*

references

Bale, A. (2011). Scales and comparison classes. *Natural Language Semantics*, 19:169–190.

Bartsch, R. and Vennemann, T. (1972). The grammar of relative adjectives and comparison. *Linguistische Berichte*, 20:19–32.

Beck, S., Krasikova, S., Fleischer, D., Gergel, R., Hofstetter, S., Savelsberg, C., Vanderelst, J., and Villalta, E. (2009). Crosslinguistic variation in comparison constructions. In Van Craenenbroeck, J., editor, *Linguistic Variation Yearbook*.

Bhatt, R. and Pancheva, R. (2004). Late merger of degree clauses. *Linguistic Inquiry*, 35:1–45.

Bierwisch, M. (1980). Semantic structure and illocutionary force. In Searle, J., Kiefer, F., and Bierwisch, M., editors, *Speech act theory and pragmatics*, pages 1–35. Springer.

Bochnak, M. R. (2015). Degree achievements in a degree-less language. In Pasquereau, J., editor, *Proceedings of Semantics of Underrepresented Languages of the Americas (SULA) 8*, pages 17–32.

Bolinger, D. (1972). *Degree Words*. Mouton, Paris.

Bresnan, J. (1973). Syntax of comparative clause construction in English. *Linguistic Inquiry*, 4:275–344.

Carlson, G. (1977). *Reference to Kinds in English*. PhD Thesis, University of Massachusetts, Amherst.

Chierchia, G. (1998). Plurality of mass nouns and the notion of "semantic parameter". In Rothstein, S., editor, *Events and grammar*, page 53.

Cresswell, M. (1976). The semantics of degree. In Partee, B., editor, *Montague Grammar*, pages 261–292. Elsevier.

Cresti, D. (1995). Extraction and reconstruction. *Natural Language Semantics*, 3:79–122.

Doetjes, J. (1997). *Quantifiers and Selection*. PhD Thesis, Leiden University.

Doetjes, J. (2012). On the (in)compatibility of non-neutral adjectives and measure phrases. In Guevara, A., Chernilovskaya, A., and Nouwen, R., editors, *Proceedings of SuB 16*. MITWPL.

Grano, T. (2012). Mandarin *hen* and universal markedness in gradable adjectives. *Natural Language and Linguistic Theory*, 30:513–565.

Grosu, A. (2009). Two kinds of degree-denoting relatives. *Brill's Annual of Afroasiatic Languages and Linguistics*, 1:176–203.

Grosu, A. and Landman, F. (1998). Strange relatives of the third kind. *Natural Language Semantics*, 6:125–170.

Haspelmath, M. and Buchholz, O. (1998). Equative and similative constructions in the languages of Europe. In van der Auwera, J. and Baoill, D. O., editors, *Adverbial constructions in the languages of Europe*, pages 277–334. Mouton de Gruyter.

Heim, I. (1985). Notes on comparatives and related matters. Ms., University of Texas, Austin.

Heim, I. (1987). Where does the definiteness restriction apply? Evidence from the definiteness of variables. In Reuland, E. and ter Meulen, A., editors, *The Representation of (In)definiteness*. MIT Press.

Heim, I. (2000). Degree operators and scope. In Jackson, B. and Matthews, T., editors, *Proceedings of SALT X*, pages 40–64. CLC Publications.

Heim, I. (2003). On quantifiers and NPIs in comparative clauses. Ms., MIT.

Hellan, L. (1981). *Towards an Integrated Analysis of Comparatives*. Narr, Tubingen.

Hoeksema, J. (1983). Negative polarity and the comparative. *Natural language and linguistic theory*, 1:403–434.

Hoeksema, J. (1984). To be continued: the story of the comparative. *Journal of Semantics*, 3:93–107.

Horn, L. (2013). Between the hedges: Commentary on sarah murrayÕs "hedged assertions and questions". Comments given at the Rutgers Language Workshop.

Katzir, R. (2007). Structurally-defined alternatives. *Linguistics and Philosophy*, 30:669–690.

Kennedy, C. (1999a). Gradable adjectives denote measure functions, not partial functions. *Studies in the Linguistic Sciences*, 29:65–80.

Kennedy, C. (1999b). *Projecting the adjective*. Routledge.

Kennedy, C. (2007). Modes of comparison. In Elliott, M., Kirby, J., Sawada, O., Staraki, E., and Yoon, S., editors, *Proceedings of CLS 43*.

Klein, E. (1980). A semantics for positive and comparative adjectives. *Linguistics and Philosophy*, 4:1–45.

Klein, E. (1982). The interpretation of adjectival comparatives. *The Journal of Linguistics*, 18:113–136.

Klein, E. (1990). Comparatives. In von Stechow, A. and Wunderlich, D., editors, *Semantik/Semantics: an international handbook of contemporary research*, pages 673–691. de Gruyter.

Kotek, H. (2011). Degree relatives, definiteness and shifted reference. In Kan, S., Moore-Cantwell, C., and Staubs, A., editors, *Proceedings of NELS 40*. GLSA Publications.

Ladusaw, W. (1979). *Polarity as inherent scope relations*. PhD Thesis, University of Texas, Austin.

Landman, M. (2006). *Variables in Natural Language*. PhD Thesis, University of Massachusetts, Amherst.

Matushansky, O. (2001). More of a good thing: Russian synthetic and analytic comparatives. In *Proceedings of FASL 10*. University of Michigan Press.

Paradis, C. (2001). Adjectives and boundedness. *Cognitive Linguistics*, 12(1):47–65.

Pustejovsky, J. (1995). *The generative lexicon*. MIT Press.

Pustejovsky, J. and Bouillon, P. (1995). Aspectual coercion and logical polysemy. *Journal of Semantics*, 12:133–162.

Rett, J. (2008). *Degree modification in natural language*. PhD Thesis, Rutgers University.

Rett, J. (2015). Antonymy in space and other strictly-ordered domains. In Glanzberg, M., Skilters, J., and Svenonius, P., editors, *Perspectives on Spatial Cognition*, volume 10, pages 1–33.

Rett, J. (2020). Separate but equal: a typology of equative constructions. In Hallman, P., editor, *Degree and Quantification*. Brill.

Romero, M. (2005). Two approaches to biased *yes/no* questions. In Alderete, J., Han, C.-h., and Kochetov, A., editors, *Proceedings of the 24th West Coast Conference on Formal Linguistics*, pages 352–360. Cascadilla Proceedings Project.

Rothstein, S. (2009). Individuating and measure readings of classifier constructions: evidence from Modern Hebrew. *Brill's Annual of Afroasiatic Languages and Linguistics*, 1:106–145.

Sapir, E. (1944). Grading: a study in semantics. *Philosophy of science*, 11:93–116.

Schwarzschild, R. (2009). Stubborn distributivity, multiparticipant nouns and the count/mass distinction. In *NELS 39*.

Schwarzschild, R. and Wilkinson, K. (2002). Quantifiers in comparatives: A semantics of degree based on intervals. *Natural Language Semantics*, 10:1–41.

Seuren, P. (1984). The comparative revisited. *Journal of Semantics*, 3:109–141.

von Stechow, A. (1984). Comparing semantic theories of comparison. *Journal of Semantics*, 3:1–77.

Stassen, L. (1985). *Comparison and Universal Grammar: an essay in Universal Grammar*. Basil Blackwell.

Stavrou, M. (2003). Semi-lexical nouns, classifiers, and the interpretation of the pseudopartitive construction. In Coene, M. and d'Hulst, Y., editors, *From NP to DP: the syntax and semantics of noun phrases*. John Benjamins.

Tonhauser, J. (2011). Temporal reference in Paraguayan Guaraní, a tenseless language. *Linguistics & Philosophy*, 34:257–303.